**Unless otherwise specified, "descriptions" referenced in the evidence statements could include but are not limited to written, oral, pictorial, and kinesthetic descriptions.*

3-PS2-4 Motion and Stability: Forces and Interactions

Students who demonstrate understanding can:

3-PS2-4. **Define a simple design problem that can be solved by applying scientific ideas about magnets.*** [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems
Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.

- Define a simple problem that can be solved through the development of a new or improved object or tool.

Disciplinary Core Ideas

PS2.B: Types of Interactions

- Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.

Crosscutting Concepts

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Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process.

Observable features of the student performance by the end of the grade:		
1	Identifying the problem to be solved	
	a	Students identify and describe* a simple design problem that can be solved by applying a scientific understanding of the forces between interacting magnets.
	b	Students identify and describe* the scientific ideas necessary for solving the problem, including:
		i. Force between objects do not require that those objects be in contact with each other
		ii. The size of the force depends on the properties of objects, distance between the objects, and orientation of magnetic objects relative to one another.
2	Defining the criteria and constraints	
	a	Students identify and describe* the criteria (desirable features) for a successful solution to the problem.
	b	Students identify and describe* the constraints (limits) such as:
		i. Time.
		ii. Cost.
		iii. Materials.